FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

January 6 to 12, 2013 (Week 02)

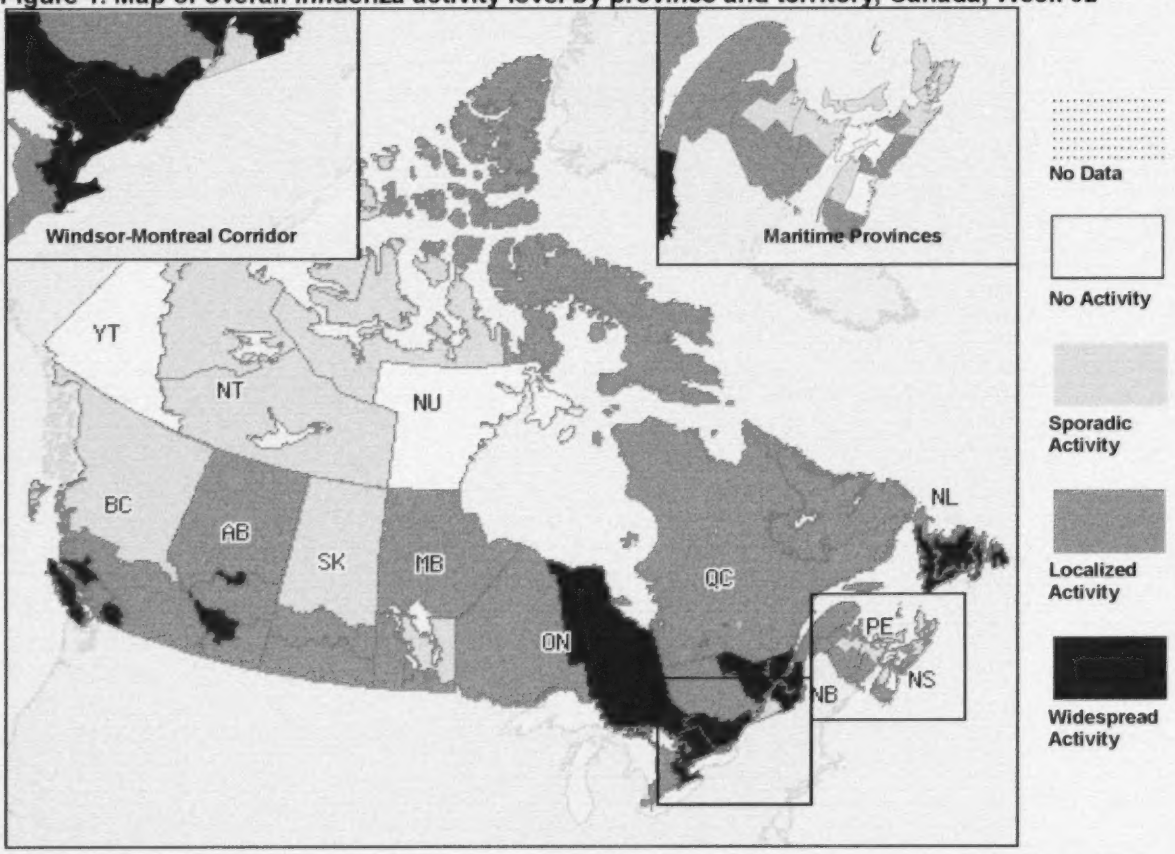
Overall Influenza Summary

- The percentage of positive laboratory tests for influenza declined in week 02; however, more regions across Canada reported widespread and localized influenza activity and 130 new influenza outbreaks were reported.
- The ILI consultation rate increased and is well above the expected range for this time of year.
- A total of 3744 laboratory detections of influenza were reported, of which 97.8% were for influenza A viruses, predominantly A(H3N2).
- 51 new paediatric influenza-associated hospitalizations were reported through the IMPACT network.
- 44 new adult influenza-associated hospitalizations were reported through the PCIRN-SOS network.

Influenza Activity (geographic spread) and Outbreaks

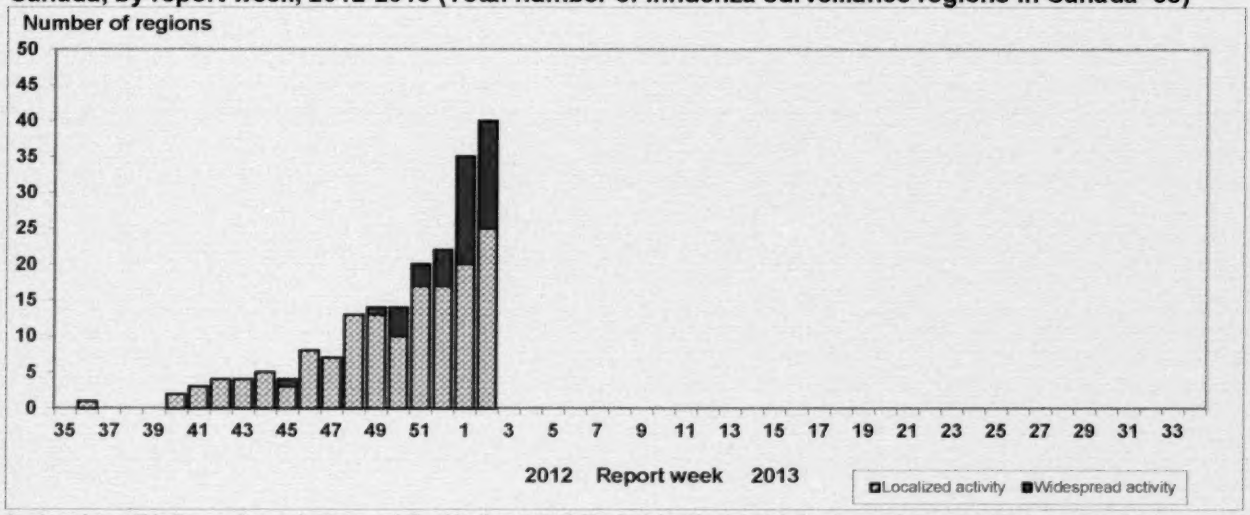
In week 02, 15 regions [in BC(2), AB(2), ON(5), QC(3) and NL(3)] reported widespread activity and 25 regions [in BC(2), AB(3), SK(2), MB(4), ON(2), QC(2), NB(5), NS(3), NL(1) and NU(1)] reported localized activity (Figures 1 and 2). In week 02, 130 new influenza outbreaks were reported: 98 in long-term-care facilities, 2 in hospitals, 5 in schools, and 25 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 02



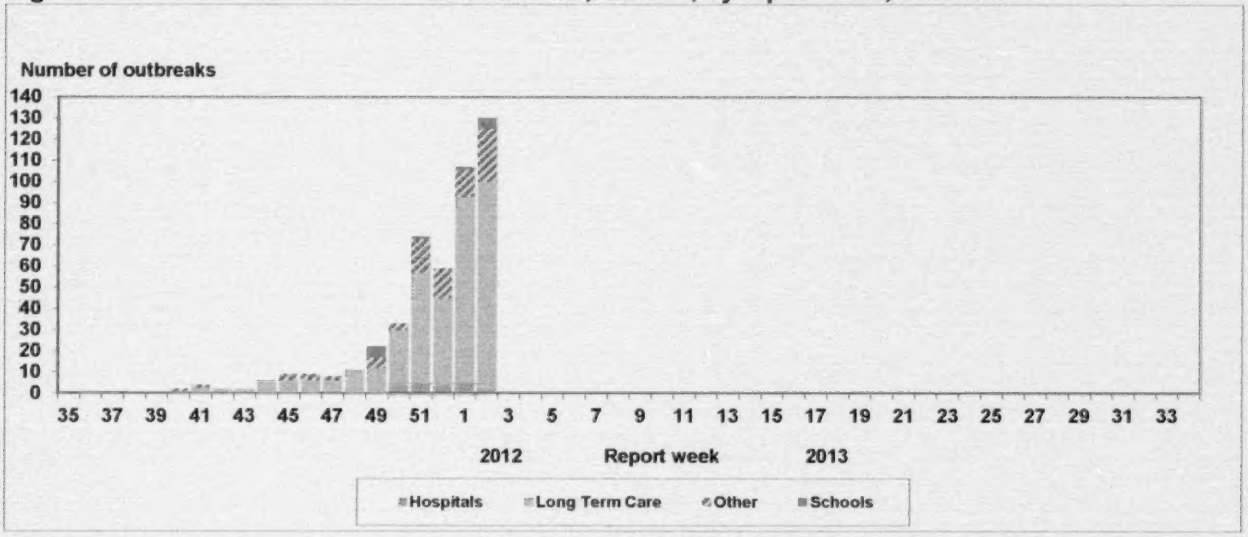
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests decreased from 32.5% in week 01 to 30.7% in week 02 (Figure 4). Among the influenza viruses detected in week 02 (n=3744), 97.8% were positive for influenza A viruses [of which 34.6% were A(H3), 1.9% were A(H1N1)pdm09, and 63.6% were A(unsubtyped)]; and 2.2% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 97.6% influenza A [34.3% A(H3), 1.4% A(H1N1)pdm09 and 64.3% A(unsubtyped)] and 2.4% influenza B (Table 1).

Detailed information on age and type/subtype was received for 13,556 cases to date this season (Table 2). The proportions of cases by age group were as follows: 12.5% were < 5 years; 7.1% were between 5-19 years; 15.1% were between 20-44 years; 16.2% were between 45-64 years of age; 49.1% were ≥ 65 years.

The percentage of tests positive for RSV was similar to week 01 (10.7%) at 10.4% in week 02. The percentage of tests positive for rhinovirus (3.9%), parainfluenza (2.3%), and coronavirus (3.6%) each increased slightly compared to the previous week. Other percentages of positive tests remained low in week 02: adenovirus 0.7%; hMPV 1.0% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (January 6 to January 12, 2013)						Cumulative (August 26, 2012 to January 12, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	217	0	146	6	65	17	608	0	519	12	77	37
AB	297	0	197	36	64	15	1628	0	1378	112	138	101
SK	121	0	78	0	43	9	533	0	366	4	163	34
MB	109	0	19	1	89	4	233	0	61	1	171	19
ON	1202	0	422	18	762	18	5053	0	2560	79	2414	89
QC	1408	0	188	7	1213	19	7780	0	451	14	7315	119
NB	212	0	212	0	0	1	341	0	271	10	60	2
NS	22	0	0	0	22	0	35	0	0	0	35	2
PE	3	0	3	0	0	0	25	0	24	1	0	1
NL	70	0	0	0	70	0	241	0	16	0	225	1
Canada	**3661**	**0**	**1265**	**68**	**2328**	**83**	**16477**	**0**	**5646**	**233**	**10598**	**405**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (January 6 to January 12, 2013)					Cumulative (Aug. 26, 2012 to January 12, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	172	11	35	126	5	1631	44	546	1041	68
5-19	48	1	18	29	6	892	13	410	469	66
20-44	187	10	44	133	8	1995	59	776	1160	52
45-64	249	9	48	192	7	2143	54	747	1342	51
65+	955	4	220	731	11	6584	30	2287	4267	74
Unknown	2	0	1	1	0	65	2	61	2	0
Total	**1613**	**35**	**366**	**1212**	**37**	**13310**	**202**	**4827**	**8281**	**311**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

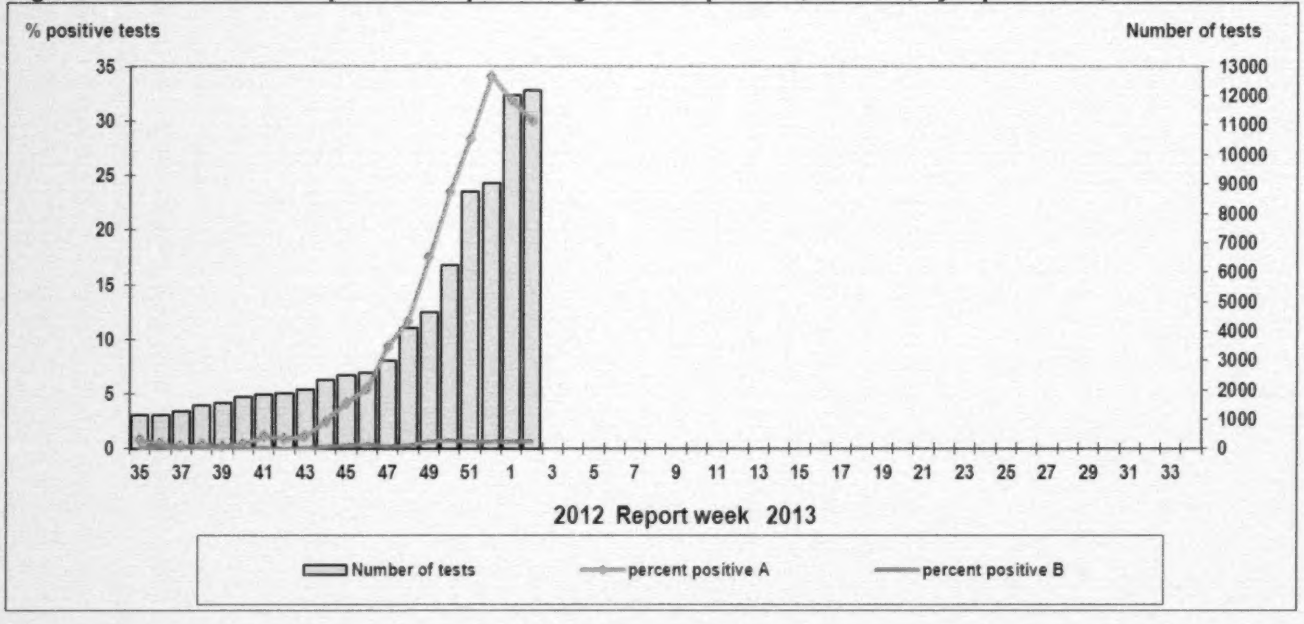
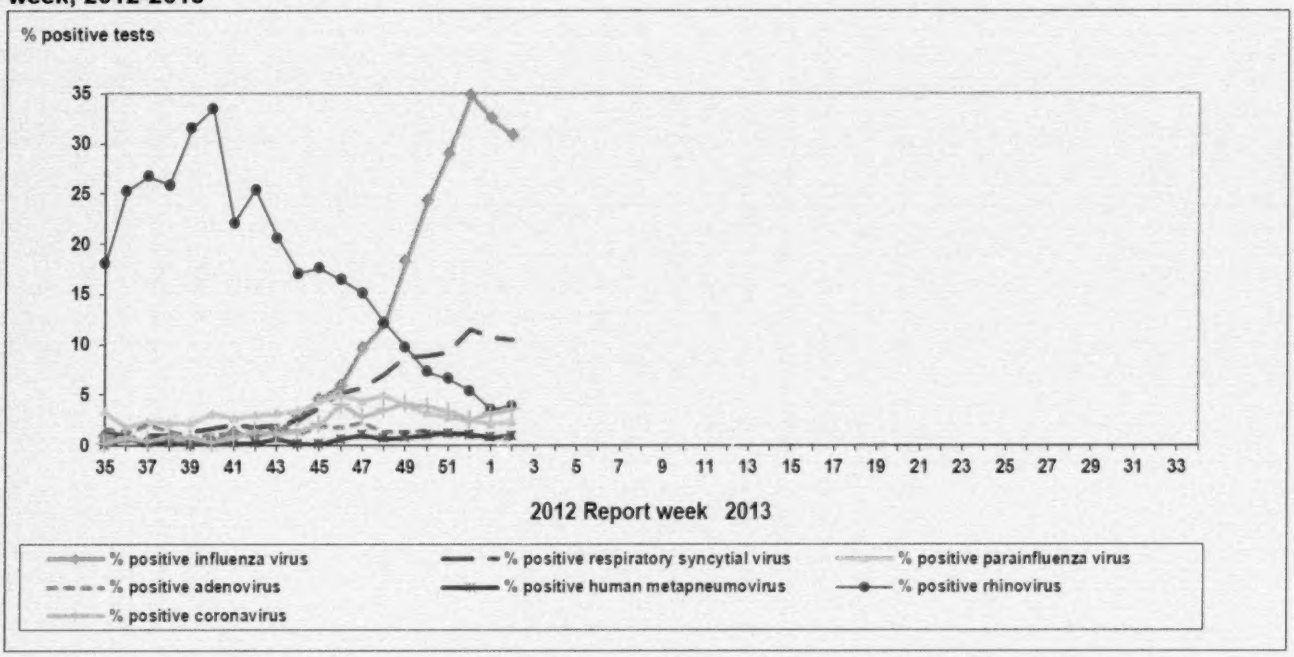


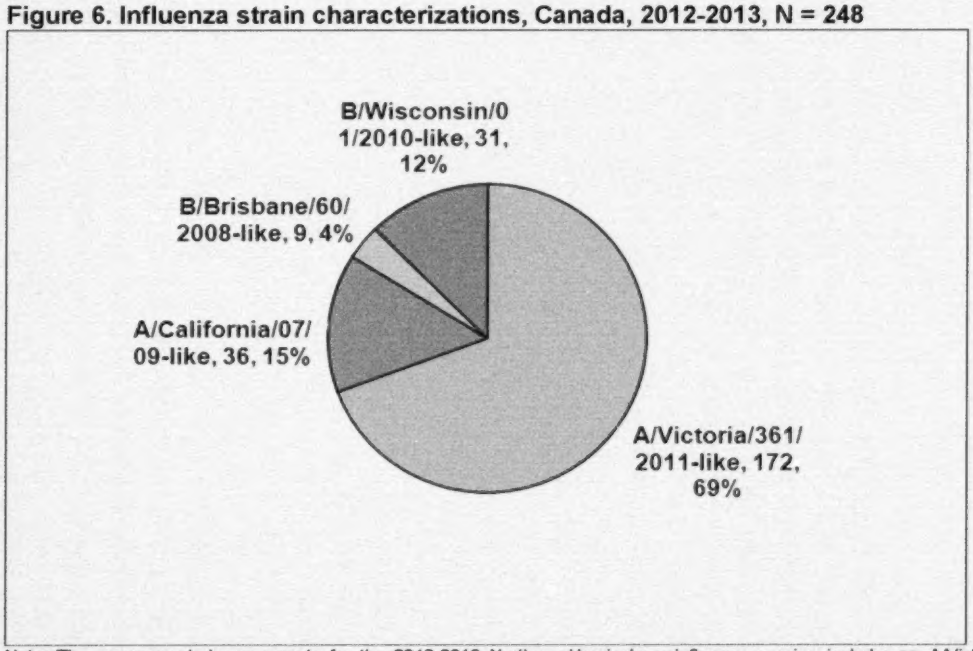
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 248 influenza viruses [172 A(H3N2), 36 A(H1N1)pdm09 , and 40 influenza B]. The 172 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 36 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 31 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 9 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 248



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 214 influenza viruses for resistance to oseltamivir, and 213 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 333 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

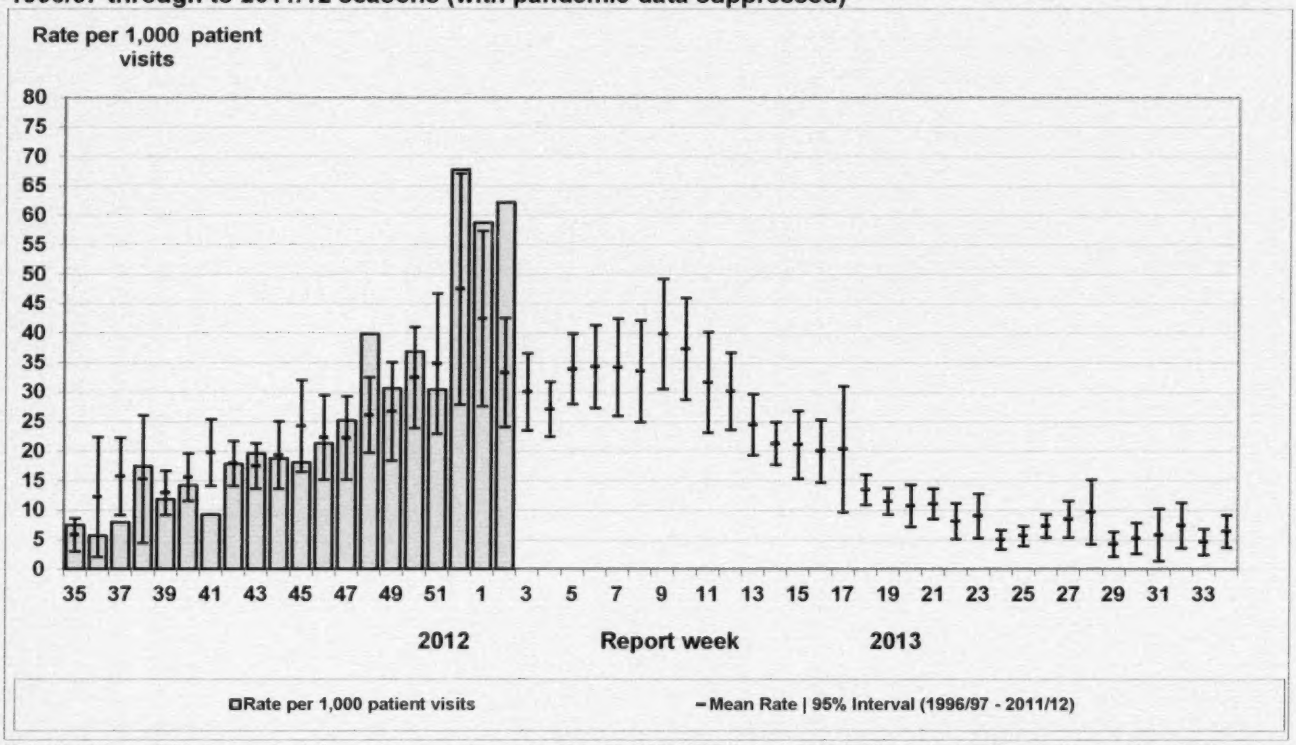
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	163	0	162	0	306	306 (100%)
A (H1N1)	25	0	25	0	27	27
B	26	0	26	0	NA*	NA*
TOTAL	214	0	213	0	333	333 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased from 58.7 ILI consultations per 1,000 patient visits in week 01 to 62.1 in week 02. This rate is well above the expected level for this time of year, which is between 24.0 and 42.5 ILI consultations per 1,000 visits (Figure 7). The increased ILI consultation rate may be due in part to ongoing influenza and RSV activity across Canada, as well as increased public attention to the early influenza season. In week 02, the highest consultation rates were observed in children <5 years of age (90.8/1,000) followed by children 5-19 years of age (78.2/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate decreased from 337.6 antiviral prescriptions per 100,000 new prescriptions dispensed in week 01 to 285.7 in week 02. In week 02, the antiviral prescription rate decreased for adult and senior age groups, and was stable for infants and children. The highest rate was observed among seniors ≥65 years, at 475.1/100,000. The current proportion of antiviral prescriptions of 285.7/100,000 is higher than the rate observed during the peak period of influenza activity last year (50-100/100,000); however, it continues to follow the trend of the percentage of positive laboratory tests for influenza.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 02, 51 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 74 in week 01. Among the 49 cases identified with influenza A, 42 (85.7%) were A(unsubtyped), 6 (12.2%) were A(H3N2) and 1 (2.0%) was A(H1N1)pdm09. Two cases were identified with influenza B. The age distribution is as follows: 10 cases (19.6%) under 6 months of age, 16 (31.4%) between 6-23 months, 16 (31.4%) aged 2-4 years, 8 (15.7%) aged 5-9 years, and 1 (2.0%) aged 10-16 years. Five ICU admissions were reported during this week, four cases between 6-23 months and one aged 2-4 years.

Since the start of the 2012-13 season, a total of 394 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 380 (96.4%) with influenza A [of which 56 (14.7%) were A(H3N2), 3 (0.8%) were A(H1N1)pdm09 and 321 (84.5%) were A(unsubtyped)], and 14 (3.6%) with influenza B. The distribution of cases by age group is as follows: 90 (22.8%) <6 months of age; 83 (21.1%) age 6-23 months; 112 (28.4%) age 2-4 years; 71 (18.0%) age 5-9 years; and 38 (9.6%) age 10-16 years. Thirty-six of the 394 cases (9.1%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Adult Influenza Hospitalizations and Deaths (PCIRN)
In week 02, 44 new laboratory-confirmed influenza-associated adult (16 years of age and older) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 26 in week 01. The age distribution is as follows: 34 cases (77.3%) were ≥65 years of age, 7 cases (15.9%) were aged 45-64 years, and 3 cases (6.8%) were aged 20-44 years. Among the 42 cases identified with influenza A, one was A(H3N2), and the rest were A(unsubtyped). Two cases were identified with influenza B. One ICU admission was reported during the current week in a case of influenza A(unsubtyped) in an individual ≥65 years of age. Three deaths were reported with influenza A(unsubtyped): two individuals were ≥65 years of age, and the third was 45-64 years of age.

From November 4, 2012 to January 12, 2013, a total of 362 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 344 (95.0%) with influenza A [of which 37 (10.8%) were A(H3N2), 2 (0.6%) were A(H1N1), and 305 (88.7%) were A(unsubtyped)]; 9 (2.5%) with influenza B, and the type has not yet been reported for 9 (2.5%) cases. The distribution of cases by age group is as follows: 244 cases (67.4%) were aged ≥65 years, 81 cases (22.4%) were aged 45-64 years, 33 cases (9.1%) were aged 20-44 years, and 3 cases (0.8%) were <20 years of age. Age was not reported for one case. Nineteen of the 362 cases (5.2%) were admitted to the ICU. Ten admissions were in adults aged ≥65 years, four were aged 45-64 years, and five were aged 20-44 years. Of the 19 ICU admissions, 9 cases (47.4%) had at least one comorbidity, two cases (10.5%) had no co-morbidities, and eight cases (42.1%) had no available information on comorbidities to date. Sixteen deaths have been reported to date, fifteen cases with influenza A(unsubtyped), and one case with influenza A(H3N2). Fourteen deaths were in adults aged ≥65 years, one was in a person aged 45-64 years, and one was in a person aged 20-44 years. In two cases, at least one comorbidity was present. Clinical information on comorbidities was not available for the other cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associate adult hospitalizations in Canada.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 02, 823 laboratory-confirmed influenza-associated hospitalizations were reported*. Ninety eight percent of cases (810/823) were influenza A [42% A(H3); 2.3% A(H1N1)pdm09; 55.7% A(unsubtyped)], and 1.6% (13/823) were influenza B. More than half of the cases (60% 497/823) were ≥65 years of age, 16.5% were adults aged 46-64 years and 13% were children aged 0-4 years. Of the 130 cases with available data, 15.4% (20/130) were admitted to the Intensive Care Unit (ICU). Fifty-one deaths were reported in week 02, the majority of which were persons ≥65 years of

age (78.4%; 40/51); 10 were adults aged 45-64 yeas and one was an adult aged 20-44 years. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 1675 influenza-associated hospitalizations have been reported. Of these, 97.7% (1636/1675) have been influenza A [predominately A(H3) (45.7%; 748/1636)] and 2.3% have been influenza B. Half of the cases (55.7% 933/1675) were ≥65 years of age, 16.4% (275/1675) were adults aged 45-64 years and 14.4% (241/1675) were children aged 0-4 years. Among the 428 cases with available data, there have been 66 hospitalisations for which admission to ICU was required; 24 were persons ≥65 years of age, 24 were persons aged 45-64 years, 9 were adults aged 20-44 years, 1 was an individual aged 15-19 years, 3 were children aged 5-14 years and 5 were children aged 0-4 years. To date this season, 104 deaths have been reported: 86 were adults aged ≥ 65 years of age, 11 were adults aged 45-64 years; 4 were adults aged 20-44 years; and 3 were children aged 0-4 years. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note: * The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO:
No new influenza surveillance update has been published since 7 January 2013.
World Health Organization influenza update

United States: During week 02, influenza activity remained high in the United States, but decreased some areas. Forty-eight states reported widespread influenza activity, two states reported regional influenza activity, and the District of Columbia reported local activity. The national percentage of outpatient visits for ILI was 4.6% which is above the national baseline of 2.2%. All 10 regions reported ILI above region-specific baseline levels, and 30 states and New York City experienced high ILI activity in week 02. During week 02, the percentage of deaths due to pneumonia and influenza was 8.3%, which is above the epidemic threshold of 7.3%. The proportion of tests positive for influenza viruses declined to 29.4% in week 02. Of the positive influenza detections, 82.5% were positive for influenza A viruses. Of the 1648 influenza A viruses for which subtype information was available, 97.3% were A(H3) and 2.7% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 612 influenza viruses. Among influenza A viruses, 394 were A/Victoria/361/2011-like, two (0.5%) of which showed reduced titers; and 41 were A/California/7/2009-like. Among influenza B viruses, 118 (66.7%) B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 59 (33.3%) to the B/Victoria lineage. Twenty-nine influenza-associated paediatric deaths have been reported to date this season, 19 with influenza A and 10 with influenza B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 02, widespread transmission of influenza was reported by most countries in the western part of the region. Consultation rates for ILI and ARI (acute respiratory infection) are above seasonal thresholds in several countries in the northern and western regions, and rates are starting to increase in eastern regions. There is continued co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B, although the proportion of A(H1N1)pdm09 continues to increase, accounting for 84% of subtyped influenza A in week 02. Since week 40, 12,247 specimens of influenza viruses have been typed: 67% were influenza A and 33% were influenza B. Among the 4475 influenza A viruses for which subtype information was available, 66% were A(H1N1)pdm09 and 34% were A(H3). This is a significantly greater proportion of A(H1N1)pdm09 compared to the 2011-12 season. Among 497 characterized influenza B viruses, 91% belonged to the Yamagata lineage, and 9% to the Victoria lineage. The number of hospitalizations due to severe acute respiratory illness (SARI) is increasing slowly, with a rising proportion testing positive for influenza.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 17 December 2012.
WHO Influenza at the human-animal interface

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 02.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.